What is claimed is:

1. A data rate detector, comprising:

an input interface to receive a digital signal having a data rate that is one of at least two known data rates;

a passing frequency-selective filter assembly coupled to the input interface and includes a first filter to pass a signal when at least a selected difference of spectral power at a first selected filtered frequency exists between the one known data rate of the signal relative to the other of the two known data rates of the filter; and,

a signal detector coupled to the filter to detect the passed signal and output a data rate signal related thereto.

2. The data rate detector of claim 1, wherein the preselected spectral power difference is the difference between the spectral power value of one of the two known data rates compared to a corresponding spectral power value of a null of the other of the two data rates at the preselected filtered frequency.

3. The data rate detector of claim 1, wherein the two known data rates are integer multiples of each other.

4. The data rate detector of claim 1, wherein the filter assembly includes at least a second filter coupled to the input interface to receive a digital signal having a data rate that is at a third known data rate, the second filter passes a signal when at least a selected difference of spectral power at a second selected filtered frequency exists between the third known data rate and the two known data rates, and a second signal detector detects the passed signal of the second filter and outputs a corresponding data rate signal related thereto.

5. The data rate detector of claim 1 wherein the first filter includes a tunable filter that includes logic to pass multiple rates by adjusting the first null of the one known data rate.

6. The data rate detector of claim 1 wherein the first filter is a bandpass filter.

7. The data rate detector of claim 6, wherein the bandpass filter is a passive filter.

8. The data rate detector of claim 7, wherein the passive filter is a Butterworth filter.

9. The data rate detector of claim 1, wherein the first filter includes a reference clock coupled thereto.

10. The data rate detector of claim 8, wherein the first filter is a tunable filter that is operable for adjusting a first null of the one known data rate at the selected filtered frequency.

11. The data rate detector of claim 9, wherein the first filter is an active filter.

12. The data rate detector of claim 9, wherein the active filter comprises a DSP filter.

13. An optical transceiver, comprising:

(a) an optical receiver having a photodetector to receive an optical input and a transimpedance amplifier to generate an output electrical signal in response thereto;

(b) a frequency-selective filter assembly coupled to the input interface and includes a first filter to pass a signal when at least a selected difference of spectral power at a first selected filtered frequency exists between one known data rate relative to the other of two known data rates; and,

a signal detector coupled to the filter to detect the passed signal and output a data rate signal related thereto;

(c) a post amplifier connected to the signal rate detector and the optical receiver;

(d) a host interface connected to couple outputs of the signal rate detector and the post amplifier to a host system and in response to the output of the signal rate detector, the optical receiver and/or the transimpedance amplifier and/or the post amplifier and/or the host adapt to a rate of transmission of the optical input.

14. The optical transceiver of claim 13, further comprising:

(a) an ac modulator to receive host input through the host interface and generate an electrical output; and

(b) an optical transmitter to receive the electrical output of the ac modulator and in response thereto generate an optical output.

15. The optical transceiver of claim 14, wherein the optical output is at the rate of transmission of the optical input.

16. The optical transceiver of claim 14, wherein the optical transmitter is a laser.

17. A method of detecting the transmission rate of a data signal, comprising:

(a) receiving the data signal having the transmission rate that could be one of at least two known data rates;

(b) utilizing a frequency-selective filter assembly including a first filter for passing signal if the incoming data rate exists at the preselected filtered frequency and comparing the signal power to the selected spectral power level; and,

(c) passing an output from the filter to a signal detector and outputting a data rate signal from the signal detector.

18. The method of claim 17, wherein the preselected difference is the difference in spectral power between a null of the data signal at one of the two known data rates compared to a corresponding spectral power value at the other of the two known data rates.

19. The method of claim 18, wherein the data rate signal has a voltage indicative of the transmission rate.

20. The method of claim 19 wherein the filtering is accomplished by using a bandpass filter.

21. The method of claim 19 wherein the bandpass filtering step is accomplished by an active filter.

22. The method of claim 21 wherein the bandpass filtering step is accomplished by a passive filter.

23. The method of claim 17 wherein provision is made for at least a second filter coupled to the input interface to receive a digital signal having a data rate that is at a third known data rate, the

second filter passes a signal when at least a selected difference of spectral power at a second selected filtered frequency exists between the third known data rate and the two known data rates, and a second signal detector detects the passed signal of the second filter and outputs a corresponding data rate signal related thereto.

24. A data rate detector, comprising:

an input interface to receive a signal having a data rate that is one of at least two known data rates;

a frequency-selective filter assembly including at least a first filter coupled to the input interface to pass a signal at one of the two known data rates when at least a preselected difference of spectral power at a preselected filtered frequency of the one known data rate exists relative to a signal having the other of the two known data rates;

a signal detector to detect the passed frequency and output a data rate signal;

at least one feedback path to the input interface to adapt to the passed frequency to optimize transmission in response to the data rate signal; and,

a host interface to transmit the data rate signal outside the data rate detector.